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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/787,086 | 02/27/2004 | Takeshi Kato | NIT-156-05 | 4293 |

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EXAMINER

SONG, SARAH U

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Offic Action Summary | Applicati n N . 10/787,086 | Applicant(s) KATO ET AL. |
|----------------------|-------------------------------|-----------------------------|
| Examiner | Art Unit | |
| Sarah Song | 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Periodic Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 March 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 20-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 20-29 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 27 February 2004 is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. 09/402,585.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0204.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

1. Applicant's communication filed on March 9, 2004 has been carefully considered and placed of record in the file. Claims 1-19 have been canceled. New claims 20-29 have been added. Claims 20-29 are pending.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/402,585, filed on January 7, 2000.

Information Disclosure Statement

3. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on February 27, 2004 have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

4. This application has been filed with twelve (12) sheets of drawings, which have been approved by the Examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

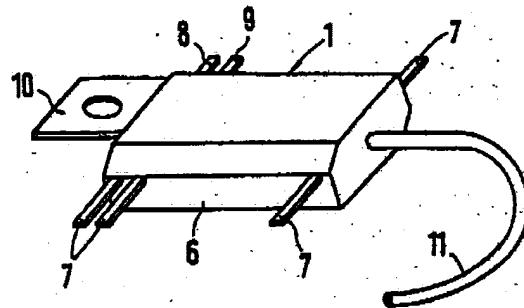
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulmer et al. (EP 0 313 956 A2) in view of Collins et al. (U.S. Patent 5,852,696).**

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7. Regarding claim 20, Ulmer et al. discloses an optical module comprising:

- an optical device (i.e. photodiode or laser diode, see abstract);
- an optical fiber 11 optically coupled to said optical device at one end; and
- a substrate (i.e. carrier strip, see abstract) on which said optical device and said end of the optical fiber are mounted.



Ulmer et al. additionally discloses a transparent resin in the coupling region of the optical device and the optical fiber (see abstract).

8. Ulmer et al. discloses the claimed invention except for a communication processing unit and the transparent resin being filled between a face of said optical device and said end of the optical fiber.

9. Collins et al. discloses that it is known for optoelectronic devices to be coupled to a communication processing unit, such as a fiber to the home telecommunications network (column 1, lines 60-64). Collins et al. also discloses a transparent gel type, index matching, sealing resin (i.e. silicone sealing gel) that bonds the fiber to the device. Since bonding of the fiber to the device is achieved between a face of the optical device and the end of the optical fiber, Collins et al. thus discloses a transparent gel type sealing resin that is filled between a face of the device and the end of the optical fiber. See column 4, lines 5-8 and lines 17-21.

10. Ulmer et al. and Collins et al. are analogous art because they are from the same field of endeavor, that is packaged optical and optoelectronic devices.

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11. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to couple a communication processing unit with the device of Ulmer et al.

12. The motivation for doing so would have been to provide a transmission network for efficient low-cost, high-speed communications.

13. Also at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the transparent gel type sealing resin of Collins et al. in between a face of the optical device and the end of the optical fiber of Ulmer et al.

14. The motivation for doing so would have been to reduce reflections at the interface of the fiber and the device, thus ensuring stable operation of the device and efficient coupling between the device and the fiber.

15. Regarding claim 21, as noted above in Paragraph 9, the refractive index of the transparent gel type sealing resin is an index matching resin (see column 4, lines 5-8). Therefore, the refractive index of the resin matches that of the optical fiber.

16. Regarding claim 22, as noted above in Paragraph 9, the resin is a gel (see column 4, lines 5-8). Therefore, the resin is in gel form.

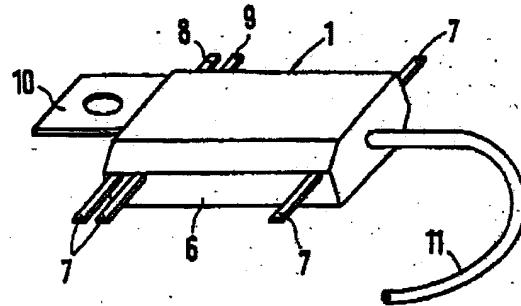
17. Regarding claim 23, the optical device, said end of the optical fiber, and said substrate are placed inside a resin casing 6 (i.e. plastic sheath, see abstract) as shown in Figure 1 of Ulmer et al.

18. Regarding claim 24, Ulmer et al. discloses that, "plastic (6) is moulded around the arrangement as a whole." Therefore, it is evident that the optical device, said end of the optical fiber and said substrate are placed in a cavity inside said resin casing, the cavity being filled by the optical device, said end of the optical fiber, and said substrate.

19. **Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulmer et al. in view of Collins et al.**

20. Regarding claim 25, Ulmer et al. discloses an optical module comprising:

- an optical device (i.e. photodiode or laser diode, see abstract);
- an optical fiber 11 optically coupled to said optical device at one end; and
- a substrate (i.e. carrier strip, see abstract)



on which said optical device and said end of the optical fiber are mounted.

Ulmer et al. additionally discloses a transparent resin in the coupling region of the optical device and the optical fiber (see abstract).

21. Ulmer et al. discloses the claimed invention except for the transparent resin being filled between a face of said optical device and said end of the optical fiber.

22. Collins et al. discloses a transparent gel type, index matching, sealing resin (i.e. silicone sealing gel) that bonds the fiber to the device. Since bonding of the fiber to the device is achieved between a face of the optical device and the end of the optical fiber, Collins et al. thus discloses a transparent gel type sealing resin that is filled between a face of the device and the end of the optical fiber. See column 4, lines 5-8 and lines 17-21.

23. Ulmer et al. and Collins et al. are analogous art because they are from the same field of endeavor, that is packaged optical and optoelectronic devices.

24. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the transparent gel type sealing resin of Collins et al. in between a face of the optical device and the end of the optical fiber of Ulmer et al.

25. The motivation for doing so would have been to reduce reflections at the interface of the fiber and the device, thus ensuring stable operation of the device and efficient coupling between the device and the fiber.

26. Regarding claim 26, as noted above in Paragraph 22, the refractive index of the transparent gel type sealing resin is an index matching resin (see column 4, lines 5-8). Therefore, the refractive index of the resin matches that of the optical fiber.

27. Regarding claim 27, as noted above in Paragraph 22, the resin is a gel (see column 4, lines 5-8). Therefore, the resin is in gel form.

28. Regarding claim 28, the optical device, said end of the optical fiber, and said substrate are placed inside a resin casing 6 (i.e. plastic sheath, see abstract) as shown in Figure 1 of Ulmer et al.

29. Regarding claim 29, Ulmer et al. discloses that, "plastic (6) is moulded around the arrangement as a whole." Therefore, it is evident that the optical device, said end of the optical fiber and said substrate are placed in a cavity inside said resin casing, the cavity being filled by the optical device, said end of the optical fiber, and said substrate.

Conclusion

30. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

31. Any inquiry concerning the merits of this communication should be directed to Examiner Sarah Song at telephone number 571-272-2359. Any inquiry of a general or clerical nature, or relating to the status of this application or proceeding should be directed to the receptionist at telephone number 571-272-1562 or to the technical support staff supervisor at telephone number 571-272-1615.


Sarah Song
Patent Examiner
Group Art Unit 2874